

WINDSHIELD FOG DETECTOR

CROSS-REFERENCE TO RELATED APPLICATIONS

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[0001] This application is a divisional of U.S. Patent Application No. 09/970,728 filed on October 4, 2001. ^{now Patent NO 6,681,163} The entire disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to a system for automatically detecting the presence of moisture on a surface, such as the surface of a windshield of a vehicle for an automobile, in order to automatically actuate the vehicle's windshield wipers and/or defroster or defogging system.

[0003] In conventional windshield wiper systems, the windshield wipers are actuated based on the elapsed time between wipes rather than the moisture level on the exterior of the windshield. During conditions of relatively consistent rainfall, for example, the time interval can be adjusted to correspond to the amount of time in which the rain accumulates to the point of the desired visibility level. Unfortunately, the rate of rainfall may vary dramatically over a given period of time. Additionally, traffic conditions may also cause varying amounts of rain to fall on the windshields, such as when a truck passes by. As a result, during such conditions, the driver must frequently adjust the wiper time interval, which can be cumbersome.

[0004] Various systems are known which automatically control the interval between wipes of the windshield wipers based upon moisture on the vehicle windshield. In some known systems, various coatings are applied to the vehicle windshield. Electrical measurement of those coatings is used to provide an indication of the moisture content on the windshield. Unfortunately, such methods require relatively expensive processes, which makes such systems commercially non-viable. Other systems for automatically sensing the moisture content on a vehicle windshield are also known. For example, optical systems are known which measure the difference of reflected light of a dry windshield versus a wet windshield. Unfortunately, such optical systems are susceptible to interference from external light sources and thus provide inadequate performance. Other known systems must be adhered to the windshield,